



ACC.14

TCT@ACC-12 | innovation in intervention

A279

JACC April 1, 2014

Volume 63, Issue 12



Arrhythmias and Clinical EP

ROLE OF PHYSICAL ACTIVITY IN RECURRENCE OF ATRIAL FIBRILLATION: RESULTS FROM A NOVEL, PROLONGED-USE AND WEARABLE ECG PATCH

Moderated Poster Contributions

Hall C

Sunday, March 30, 2014, 4:00 p.m.-4:15 p.m.

Session Title: Autonomic Influences on Atrial Fibrillation

Abstract Category: 8. Arrhythmias and Clinical EP: Devices

Presentation Number: 1236M-359B

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Background: Cardioversion and catheter ablation are important therapeutic strategies for the management of atrial fibrillation (AF) but both are associated with a significant risk of AF recurrence. Autonomic balance, which is affected by physical exertion, has been associated with AF recurrence. We hypothesized that exertion in the 30 days after restoration of normal sinus rhythm may increase the risk of AF recurrence.

Methods: Patients (n=27) undergoing clinically indicated cardioversion or catheter ablation for symptomatic AF were remotely monitored for an average of 26.2 days post-hospitalization with a novel device, BodyGuardian (BG). BG is a wearable ECG patch that wirelessly transmits physiologic information (single-lead ECG, heart rate, respiration, and activity level) to a secure server for algorithmic processing and monitoring. Physical activity level was algorithmically calculated from continuous accelerometry data and recorded every 60 seconds on an integer scale (0 = No activity, 100 = Highest possible activity).

Results: 59.3% of patients had AF recurrence during monitoring. AF recurrence was most commonly paroxysmal and occurred an average of 11 days and 19 minutes after the procedure. 68.4% of catheter ablation patients and 37.5% of cardioversion patients had AF recurrence. In patients with AF recurrence, the average heart rate from hospital discharge until recurrence was 72.6 ± 7.9 compared to 64.1 ± 7.0 in those without AF recurrence ($p=0.02$). The average physical activity level for the study population was 5.9 ± 1.3 . In patients with AF recurrence, peak activity level in the 15 minutes before the first recorded AF recurrence averaged 18.6 ± 10.8 compared to the average activity level over the entire study of 5.7 ± 1.2 ($p=0.0002$). There was no difference in overall average activity level in subjects with and without recurrent AF ($p=0.38$).

Conclusion: AF recurrence is common following interventions to restore normal rhythm, especially in patients with faster heart rates. Furthermore, physical activity is significantly increased in the 15 minutes prior to AF recurrence, suggesting that avoidance of vigorous exertion in the first month post rhythm intervention may be warranted.